ABSTRACT OF THE DISCLOSURE

In a multiprocessor, access to shared resources is provided by a semaphore control mechanism, herein disclosed. The semaphore control mechanism provides for a high degree of programmable firmware reuse requiring relatively few modifications from a uniprocessor.

A machine check abort (MCA) handling mechanism is disclosed, which works with the semaphore control mechanism in the multiprocessor to provide improved system availability and reliability. The MCA handling mechanism provides for synchronization of multiple processors and shared resources and for timely execution resumption within the processors that remain on-line.

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